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ABSTRACT

The issue of whether senior secondary education should be expanded in Indonesia was explored. The analysis was based largely on data from a nationwide tracer study that followed a cohort of primary, lower-secondary, and upper-secondary school leavers for two years after graduation in 1976. The schooling, training, and job experiences of this cohort were used to measure both the effectiveness of senior secondary education and the relative effectiveness of different types of schools. Analysis indicated that the seemingly high unemployment rate for senior secondary school graduates is not evidence of oversupply. Indonesian unemployment is mainly of persons in a long spell of unemployment, most of whom are young persons in transition from school to work. This was a lengthy process for young people wanting to continue their education, take courses, or remain home. Many did little to find a job when they wanted one and were willing to wait for reasonably well paid work. Virtually all senior secondary graduates who wanted work were eventually employed, at pay rates substantially higher than among those with less education. Senior secondary education was found to warrant expansion. Data indicated that the academic senior secondary schools are the best investment. (Data tables are appended.) (YLB)

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Number 615

How Secondary School Graduates Perform in the Labor Market

A Study of Indonesia

David H. Clark

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ABSTRACT

The issue addressed in this paper is: on the basis of the labor market results of its graduates, should senior secondary education in Indonesia be expanded? And, if so, is it the academic or specialized schools that should grow most rapidly? The National Labor Force Surveys (SAKERNAS) present a paradoxical picture about senior secondary education: its graduates earn substantially more but also have higher unemployment rates than do those with less education. The higher earnings, if enough to compensate for the costs of education, point toward expansion; the unemployment, however, may indicate an oversupply, evidence against expansion.

The main source of data is a tracer study for a cohort of senior secondary school graduates covering the first two years after finishing school. The analysis indicates that the seemingly high unemployment rates as reported in SAKERNAS are not evidence or an oversupply of such graduates. Indonesian unemployment is mainly of persons who are in the midst of a long spell of unemployment, most of whom are young persons who are in the process of going from school to work like those described in the tracer study. The process of moving from school to work can be a lengthy one for many young persons. Some are slow to enter the labor market; they want to continue their education, or take courses, or be at home. Many at first do very little to find work when they do want a job. Some are willing to take low paid work but many want only reasonably paid work, and are willing to wait for such a job. And the labor market operates slowly, even for those who have a clear idea of the job they want and how to get that job. Thus, young people are absorbed into the labor market and into jobs very slowly and this situation generates the high unemployment rates.

The evidence is that virtually all senior secondary graduates who want work are eventually absorbed into jobs, at pay rates that are substantially higher than among those with lesser amounts of education. Even with a long wait for graduates to get jobs, senior secondary education is a good investment and warrants expansion. The data in this paper also indicate that, overall, the academic senior secondary schools (SMA) are the best investment but there are probably local situations where one or more of the specialized secondary schools deserve an even higher priority.

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I. THE ISSUE

The primary issue addressed in this paper is whether senior secondary education should be expanded in Indonesia. The analysis is based largely on data from a nationwide tracer study conducted by the Ministry of Education which followed a cohort of primary, lower secondary and upper secondary school leavers for two years after graduation in 1976.[1] The schooling, training, and job experiences of this cohort are used to measure both the overall effectiveness of senior secondary education as well as the relative effectiveness of different types of schools at the senior secondary level. An important byproduct of the tracer study has been a better understanding of the process by which new graduates in Indonesia, particularly those from senior high school move from school to work.

Senior Secondary Education in Indonesia

Indonesia has a relatively low enrollment rate at the senior secondary level in comparison with other countries at comparable levels of development. The senior secondary schools that now exist include not only academic schools but also a wide variety of specialized or vocational schools. Indeed, Indonesia places more emphasis on vocational and technical education than do most other countries, particularly the less developed countries. (See Appendix 1 for data about the relative importance of specialized education at the secondary level in Indonesia.) Senior secondary schools under the Ministry of Education are general or academic (SMA), commercial (SMEA), technical (STM), home economics (SKKA), and primary school teacher training (SPG).

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[1] The study was conducted by the Office of Educational and Cultural Research and Development, Department of Education and Culture, Jakarta. Project Director was C. M. Widodo; staff included D. Soedarminto, Konta Damanik and Hadjir Haroeni; consultants were Ruth Daroesman, Australian National University, and David H. Clark, University of Maine, USA.

The academic school (SMA) has traditionally been a route to further higher education and its curriculum concentrates on academic subjects with little or no time devoted to practical skills (Beeby). The specialized schools, on the other hand, are supposed to be terminal institutions, thereby relieving some of the pressure on the demand for further education while providing a secondary education as well as job skills that will help in modernizing the economy.

There are also schools under other ministries. A very small percentage of the latter are specialized schools providing training in agriculture, forestry, and pharmacy, while the largest number are schools under the Department of Religion (Beeby). This study examines only the effectiveness of those schools under the Ministry of Education.

Labor Market Performance of Secondary School Graduates

The national labor force sample surveys (SAKERNAS) present a paradoxical picture of the labor market performance of persons with senior secondary education. On one hand, there is a substantial amount of unemployment in Indonesia and the highest rates are found among senior secondary graduates. On the other hand, those senior high school graduates who have jobs are earning much more than persons with lesser amounts of education.

Unemployment. Open unemployment in urban Indonesia at the time of the last SAKERNAS study stood at 6%. An analysis of the SAKERNAS data (details are in Appendix 2) shows that those who were openly unemployed in urban areas had these characteristics:

(a) Most were young persons (persons under 25 made up 28% of the total labor force and 73% of the unemployed; 87% of all unemployed were under the age of 30).

(b) Most had never worked (the proportion of the unemployed who had ever held a job rises with age but even among those 20-24 only 32% had previous job experience).

(c) Many were experiencing a long spell of unemployment (a crude stock-and-flow analysis indicates that more than 60% of the unemployment during 1978 was accounted for by individuals who had a spell of unemployment lasting eight months or more).

Among those young people who were in the urban labor force, the highest rates of unemployment are found among senior secondary school graduates and the rates are seemingly very high indeed. As shown inTable 1, which contains unemployment rates by age, education, and sex, the overall unemployment rate for persons in urban areas aged 20-24 was 16%; male secondary school graduates in that same age group had an unemployment rate of 30%.

Earnings of employed graduates. In contrast to the disquietingly high unemployment rates, the earnings performance of senior secondary graduates is impressive. As shown in Table 2, mean earnings for urban males who had completed senior secondary education are almost twice the earnings for those with just a primary education. Also, the proportion in a job paying a wage that puts the worker in the higher paid sector (arbitrarily set at either Rp 20,000 or Rp 30,000) is a great deal higher among senior secondary graduates than among those with only a primary education.

These data from SAKERNAS are used later in this paper to calculate a rate of return to upper secondary education. The conclusion is that the earnings differences summarized in Table 2 are more than enough to compensate for the time and resource costs of six years of secondary education.

More evidence of the paradox. An experimental study of labor utilization in three urban areas of Java, the kotamadya of Bandung, Surakarta, and Pasuruan, was conductd by the National Institute of Economic and Social Research in 1976. Random samples were taken in each area. Strictly speaking, the data can only be used to describe the situation in these three kotamadya but, as the authors say, the data probably do provide some indication of the situation in urban Java.

Table 1 UNEMPLOYMENT RATES, URBAN AREAS OF INDONESIA, 1978

	All persons	Men	Women
All persons	6.0%	7.0%	3.8%
Age			
15-19	18.1	25.0	9.5
Less than elementary educ.	11.0	18.2	3.8
Elementary education	22.2	28.7	12.2
Junior High School	32.0	37.2	21.6
Senior High School	49.3	36.6	67.6
20-24	15.5	17.9	10.4
Less than elementary educ.	7.0	9.2	3.7
Elementary education	11.9	13.6	6.9
Junior high school	20.4	22.2	15.3
Senior high school	26.4	30.0	19.2
25-29	5.9	6.7	3.9
Less than elementary educ.	3.8	4.6	2.5
Elementary education	5.6	6.3	2.9
Junior high school	6.3	6.5	5.3
Senior high school	7.1	7.7	5.7
30 and Over	1.3	1.7	0.5
Less than elementary educ.	0.6	1.0	0.1
Elementary education	1.5	1.7	1.0
Junior high school	1.6	1.7	1.0
Senior high school	2.5	2.6	0.6

Source: SAKERNAS, 1978.

Table 2 MONTHLY INCOME, MAIN JOB, FOR URBAN MALES IN INDONESIA, BY EDUCATIONAL ATTAINMENT, 1978

	Completed elementary education	Completed senior secondary education
Mean	Rp 26,000	Rp 47,000
Proportion earning at least:		
Rp 20,000	55%	86%
Rp 30,000	32%	65%

Source: SAKERNAS, 1978.

The definitions of utilization were those first suggested by Hauser. The labor force, defined as those either working or actively looking for a job, was categorized into various groups according to their degree of utilization. The first group were those unemployed. The next group were those who were working but were inadequately utilized because they worked fewer hours than the "normal" work week. The third group were that part of the remainder who were inadequately utilized because they were earning an income insufficient to support one individual. The fourth group were those who were working but earning an insufficient income to support a family. The final group, a residual, were all those who were not categorized as inadequately utilized for one of the reasons listed above and were classified as being adequately utilized. Among the entire group of men in urban areas, about 6% were unemployed but few of the remainder had good jobs; only 16% of those in the labor force were "adequately utilized." The men who were secondary school graduates showed the same paradoxical results as described above the entire country: among all educational groups, those with a senior secondary education had the highest rate of unemployment, 10%, and the highest proportion, 33%, who were adequately utilized (Redmana, et al.).

The Issues, a Restatement

A primary purpose of this paper is to investigate the issue of whether the senior secondary school system should be expanded. The small number of secondary schools relative to the size of the country and the substantially better labor market results of graduates, once they do get work, point to expansion. On the other hand, the high rate of unemployment cited above could be interpreted as evidence of an oversupply of secondary school graduates. An argument could be made that such schools, or at least those types of secondary schools whose graduates cannot get work, should not be expanded and indeed consideration should be given to their contraction. Since almost all of the unemployment is among young persons who have never worked and are in the midst of a long spell of joblessness, a tracer study such as the one analyzed in this paper which follows fresh graduates as they leave school and begin to enter the labor market, should give insights into the meaning of these high rates of unemployment. Therefore, one set of issues investigated in this paper is about not only the extent of joblessness among secondary school graduates but also the nature of that joblessness.

A second area of concern is about the relative success of different types of specialized forms of secondary education. There are two objectives for specialized education: (1) to provide terminal secondary education (thus relieving some of the pressure on demand for higher education); and, (2) to provide job skills for the economy. Specifically, then, the tracer study has investigated these questions:

(a) Are the specialized forms of senior secondary education acting as terminal forms of education, or are the same proportion of graduates going on to further education as is the case among the academic schools?

(b) Are graduates with a particular type of specialized education doing any better in the job market than graduates of other types of school or those from the academic stream?

A final concern is the general issue of unemployment in Indonesia. Most unemployment in Indonesia is among young people and consists mainly of first timers in the labor market. By examining longitudinal information on how young people go from school to work we can get a better understanding of the meaning of this situation.

II. THE TRACER STUDY

The tracer study surveyed, over a two year period, a cohort of students and former students from a representative sample of 160 schools in eight provinces including nine different types of primary, lower secondary, and upper secondary schools. The cohort was chosen in the following manner: all students in their last year in the sample schools were identified in 1976 and their names and addresses were obtained just prior to graduation. The following year each person was contacted by post card to ascertain whether or not he or she had continued in school. The cohort chosen for personal interviews included all those no longer in school except for female school leavers who declared themselves inactive and a sample of those who were continuing full-time education. An attempt was made to interview each member of the cohort in November 1977 and again in September 1978. Attrition from the cohort was

greater among those who did not continue their education but the study was able to keep in contact with a surprisingly large portion: 89% in 1977 and 66% in 1978.[1]

This paper considers only the data about senior secondary schools. Graduates were interviewed (in the same proportions as are found in the country generally) from five different types of upper secondary schools: academic (SMA), technical (STM), economic (SMEA), home economics (SKKA), and primary school teacher training (SPG). Some of the characteristics of the persons interviewed are contained in Table 3. Overall results in 1978 for the individuals surveyed in the tracer study are contained in Table 4. The first column contains the total number of graduates for the nation as of 1976 so the reader can gain some idea of the relative size of the different types of secondary schools. The proportions who did and did not continue

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[1]Attrition was greater among (a) those who were no longer in school; (b) STM graduates; (c) men; and, (d) migrants who moved out of the areas where interview teams were located (some of the latter were followed up by mail or by contacting relatives). Continuation rates in Tables 4 and 5 have been adjusted for attrition. As for the out of school portion of the cohort, our best information is that those interviewed represent all members of the cohort. While some proportions would vary if full information were available (attrition has probably meant that rates of joblessness reported herein are higher than if full information were available), the general thrust of the argument remains valid.

Table 3 CHARACTERISTICS OF TRACER STUDY COHORT[a]

Age (at time of first interview)	18 or less	1%
	19	28
	20	40
	21	21
	22	7
	23 or more	2
Sex	Male	57%
	Female	43
Type of school	SMA	39%
	SMEA	21
	STM	23
	SKKA	2
	SPG	15
Region of School	Jakarta	21%
	Tasikmalaya	12
	Surakarta	20
	Kudus	9
	Lombok Barat	4
	Minahasa	9
	Lampung Tengah	7
	Tanjung Karang	18
Language spoken at home	Bahasa Indonesia	24
	Regional language	51
	Bahasa & regional	25
	Other	(less than 0.5%)

[a]There were 2,436 individuals from whom useable interviews were obtained in 1977 and 1978. For comments about non-response see footnote 1, page 9.

full-time education after graduating in 1976 are discussed below in the first section. Subsequent sections analyze information about those who were no longer in school with particular attention paid to those who were either working or looking for work.

Table 4 OVERALL RESULTS - LABOR FORCE ACTIVITIES OF TRACER STUDY COHORT, SEPTEMBER 1978

	Total 1976 graduates All Indonesia	Total (percent)	In School	Out of School		
				Working	Looking for work	Inactive
SMA	97,000	100%	65%	17%	14%	4%
SMEA	45,000	100%	33%	34%	28%	5%
STM	48,000	100%	28%	42%	27%	3%
SKKA	6,000	100%	57%	15%	21%	7%
SPG	26,000	100%	13%	84%	2%	1%

Source of Column 1: BP3K, Statistik Persekolahan, 1977, Table 12.

Continuation Rates.

This section reports on the proportions of graduates who did and did not continue full-time education. The main issue about continuation rates is the large, and to some extent, unmet demand for higher education in Indonesia. One reason for specialized or vocational education is to provide terminal education which supplies not only secondary education but also the opportunity to learn job skills that are immediately useful. However, if students treat secondary vocational education as just one more possible route toward higher education, one of the purposes for the education is thwarted and the vocational part of the education may be to some extent a waste of resources.

The proportions of senior secondary graduates who were still in school one and two years after the initial interview (what is termed "continuation rate") are shown in Table 5. There were substantial

Table 5 PERCENTAGE OF TRACER STUDY COHORT IN SCHOOL, 1977 AND 1978

Type of school	1977	1978
SMA (academic)	58%	65%
SMEA (commercial)	27	33
STM (technical)	27	28
SKKA (home economics)	57	57
SPG (primary school teacher training)	11	13

differences in continuation rates between the different types of secondary education. In 1978, well over half of the SMA graduates were continuing their education and, with the exception of SKKA, the rates for the specialized forms of education were significantly less. Clearly, the specialized schools (except SKKA) are more likely

to provide terminal education than is SMA. The continuation rate rose between 1977 and 1978 for most schools; that is, a larger part of the cohort was back in school in 1978 than in 1977.

The probability that an individual secondary school graduate will continue his or her education may depend on many factors. There is always the possibility that differences in continuation rates between schools are the results of the characteristics of students and their location, not the schools themselves. To test this possibility, a logit analysis was run using a dummy (0, 1) dependent variable identifying whether the member of the cohort was or was not in school in 1978, with independent variables signifying age, location and type of school. The null hypothesis was: after controlling for age and sex of students and location of school, there are no differences betweeen continuation rates of graduates from SMA and the specialized schools that cannot be explained by chance. Complete results are in the Appendix and are summarized in Table 6. The results show the effects of age, sex, type of school, language spoken at home, and location of school on the probability that a senior secondary school graduate would continue his or her education.

The 'marginal' effect of a particular independent variable is the increase or decrease in probability compared to the result had the entire grouping of variables not been considered. For example, the marginal effect of SMA education was estimated to be a .12 increase in probability. Comparisons were made using a modal graduate, a person classified according to the individual characteristics most often occurring in the cohort. The modal grouping for Table 6, the entire senior secondary school cohort that graduated in 1976, was an SMA graduate, male, who spoke a regional language, lived outside Java, and was 20 or 21 years old when he graduated; the probability that this modal person would continue his education was .38. If the type of school had not been considered at all, the probability was calculated at .26; hence the marginal effect of SMA education was .12, the entry shown in Table 6.

Table 6 SUMMARY: MARGINAL EFFECTS OF SELECTED VARIABLES ON THE PROBABILITY OF CONTINUING THEIR EDUCATION, TRACER STUDY COHORT, 1978

Independent variables and variable group	'Marginal' effect on probability of continuing education
Age	
19 or less	+.20 **
20 or 21	0
22 or more	-.17 **
Sex	
Male	+.06 **
Female	-.05 **
Language spoken at home	
Bahasa Indonesia	0
Regional	-.05 **
Both Bahasa and regional	+.05 **
Location of School	
Jakarta	0
Other Java	0
Other Indonesia	+.04 *
Type of School	
SMA	+.12 **
SMEA	-.05 *
STM	-.05 *
SKKA	+.25 **
SPG	-.16 **

Dependent variable took value of 0 if not in school in 1978, 1 if in school.

* significant at approximately .90 level of confidence.

** significant at approximately .95 level of confidence.

For derivation and meaning of entries in table, see text and Appendix 3.

The results indicate that older graduates had a lower probability and younger graduates a higher probability than did graduates of the normal or median age level; men had a higher probability than women; and graduates who spoke only a regional language at home had a lower probability as compared to those who spoke Bahasa Indonesia. Location of school had an appreciable effect on the probability of continuing but once the other variables were in the equation location was no longer significant.

As for the effects of school, the null hypothesis was rejected: after controlling for the other variables that influence whether an individual continues his education, graduates from the specialized schools (except for SKKA) still had significantly lower probabilities of going on to further education. Controlling for the other characteristics that are associated with higher and lower probabilities (age, language, etc.) did, however, reduce the measured impact of school type on continuation rates. For example, the raw figures in Table 5 indicate that 65% of SMA and 28% of STM graduates went on to further education, a difference of 37 percentage points. Once one controlled for the fact that the SMA graduates in the cohort had quite different characteristics than did STM graduates, the difference in the probability of continuing on with further education was reduced to a figure in the range of 9 to 20 percentage points, depending on student characteristics. The difference in probabilities between SMA and SMEA graduates was reduced from 22 points to a figure with a range of 9 to 20 points. See Appendix for further details.

Conclusions about Continuation Rates.

Information on continuation rates during the first year after school is finished gives an incomplete picture about how many students continue their education. For most of the schools in our study, the proportion of graduates who were continuing their education was significantly higher at the time of the second interview than it was for the first.

Graduates from the specialized forms of senior secondary education, SMEA, STM, SKAA, and SPG, were much less likely to continue their education than were graduates from SMA. This finding was confirmed by multivariate analysis. The probability that an SMA graduate would continue in full-time formal education remained higher than that found among graduates of specialized education after controlling for sex and age of the student and location of the school.

While it is true that, as a rule, a specialized secondary school is more likely to provide terminal education than is an SMA school, it should be pointed out that there are many exceptions to that rule. A majority of SMA graduates do go on to further education but far from all graduates do so; indeed, more than one-third of the SMA graduates studied did not continue their education and most of them went into the labor force. This finding deserves wide dissemination in the schools as part of a concerted effort to help more SMA graduates adjust their expectations to the real opportunities which do exist for them in the labor market if they are willing to take steps to find work instead of continuing their education. The finding suggests there is a need to send more empirical information on the labor market into the schools through a career guidance program.

By the same token, it is far from certain that STM and SMEA (and to a lesser extent SPG) graduates will cease their education after graduation. A majority of SMEA, STM, and SPG graduates do stop formal education after graduating, but far from all do; more than one-quarter of STM and SMEA graduates and more than one-tenth of SPG graduates went on to further full-time education. The possibility that those students who go to specialized schools want to and will continue their studies should not be ignored in the syllabi for these schools.

III. THE OUT-OF-SCHOOL COHORT

Post-schooling experiences of the out-of-school members of the cohort were obtained in interviews in both 1977 and 1978. Separate analyses are made of those who did and did not go to SPG, the primary school teacher training institution, since the SPG graduates faced a very special labor market situation. In the initial interview of the tracer study, each out-of-school respondent was first asked whether he (or she) had worked sometime during the previous week. An attempt was made to define "work" quite broadly to include not only what the graduate might consider a regular job but also any activity for which he received pay or profit, or any work in a family business that operated for pay or profit.[1] (Indeed, the interviewers were instructed to restart the interview and ask about the job if a person who was initially identified a "not working" was, through subsequent questions discovered to actually have been working within this definition.) Those who were not working were then asked if they were looking for a job or wanted work ("Apakah saudara sedang mencari pekerjaan, atau ingin bekerja?"). After a series of other questions, the interview was ended with the questions about the respondent's activities on a month-by-month basis over the previous year since leaving school. He, or she, was shown a blank calendar and asked to indicate months when he was working (bekerja), looking for work (mencari pekerjaan) or taking courses (mengikuti kursus).

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[1] Selama minggu lalu, apakah saudara bekerja (walaupun untuk beberapa jam saja) dengan mendapat upah/gaji/pendapatan atau keuntungan, atau bekerja sebagi karyawan di perusahaan kepunyaan keluarga saudara tanpa upah?

For ease of interviewing, the question order was reversed in the second interview. The respondent was first asked about the "calendar": since the last interview what months had he been working (bekerja) , looking for work (mencari pekerjaan) , etc. Then the interviewer took the last response and said, for example, "are you still working?" and thus began the part of the interview asking about details of jobs and job seeking activities during the week prior to the interview. If the person described himself as not working but looking for work, he was asked, among other things, what he had done to look for work in the previous month. Those who had made some effort to find work during that period were identified as being "unemployed" (questions to identify the "unemployed" were inadvertently left off of the first interview).

The figures in Table 7 summarize the answers to those questions about labor market activities during the period immediately prior to the time of the two interviews. The figures show that, except for SPG graduates, the level of joblessness among the out-of-school cohort was high. Among the group that included SMA, SMEA, STM and SKKA graduates, only a minority of those wanting work had a job at the time of the first interview. There was improvement during the second year. Nevertheless, almost two years after leaving school, less than 60% of those who wanted work actually had a job; indeed, the unemployment rate for this group (a figure comparable to the SAKERNAS unemployment rates cited above) was 38%.[1]

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[1] The figures largely refer to the same individuals although, as described previously, there was some change in school status between the two periods: some of those who were out of school in 1977 and included in the first column were in school in 1978 and excluded from the 1978 data and vice versa. Also, there were some changes in labor force status among the large majority who were out of school both years. In particular, the 8% of the group each year who were designated as being "inactive" are, to a large extent, different individuals. The reader may recall that out-of-school women who declared themselves as inactive at the time of the first interview were not interviewed and are not included in the cohort. It was thought that a labor market study of graduates should not include women who wanted to be homemakers and had no interest in paid work. Estimates about rates of change in labor force status among individuals are found below in Table 9.

One important observation can be made based on the experience of SPG graduates. As shown in Table 7, SPG graduates were those most quickly absorbed into work, no doubt because of the shortage of teachers due to the rapid expansion of primary schools. Even with this shortage however, it was not until the second interview that all reported as having work. This would seem to indicate the general difficulty of formal job entry for young people even when demand exists and the career is clearly marked.

What is "Wanting Work"?

Those persons who were not working but looking for or wanting work were asked what they had done to get a job: whether they had answered newspaper advertisements,

Table 7 LABOR FORCE STATUS, OUT-OF-SCHOOL MEMBERS OF THE TRACER STUDY COHORT, NOVEMBER 1977 AND SEPTEMBER 1978

	November 1977	September 1978
SMA, SMEA, STM and SKKA Graduates:		
Labor force status		
Working	34%	53%
Not working but wanting work	58	39
Inactive	8	8
Total	100%	100%
Labor market indicators		
Percentage without work among those who want work	63%	42%
Unemployment rate	Not available	38
SPG Graduates		
Labor force status		
Working	70%	98%
Not working but wanting work	30	1
Inactive	a	1
Total	100%	100%
Labor market indicators		
Percentage without work among those who want work	30%	1%
Unemployment rate	Not available	0

[a]Less than 0.5%

called on firms, asked friends and neighbors, etc. The answers are summarized in Table 8. There was, apparently, great variation in the amount of activity among those who said they wanted work. In the first year a sizeable number (16%) had done nothing to find a job and another larger group (43%) had made "some search" but not enough to be categorized as having made an "extensive search". By the end of the second year, among a smaller number of individuals, more had done something to look for work but almost half of those who were not working but looking for work had made what seems to be only a limited search for a job.

Table 8 CONNECTION WITH THE LABOR MARKET OUT-OF-SCHOOL MEMBERS OF TRACER STUDY COHORT NOT WORKING BUT WANTING WORK,[a] NOVEMBER 1977 and SEPTEMBER 1978

	November 1977	September 1978
Not working now but previously having had job	15%	29%
Never worked but want work		
Extensive search[b]	26	13
Some search[b]	43	51
Never looked	16	6
Total	100%	100%

[a] Excluding SPG graduates
[b] Some search: made at least one attempt to find work.
Extensive search: made at least three attempts to find work using at least two methods.

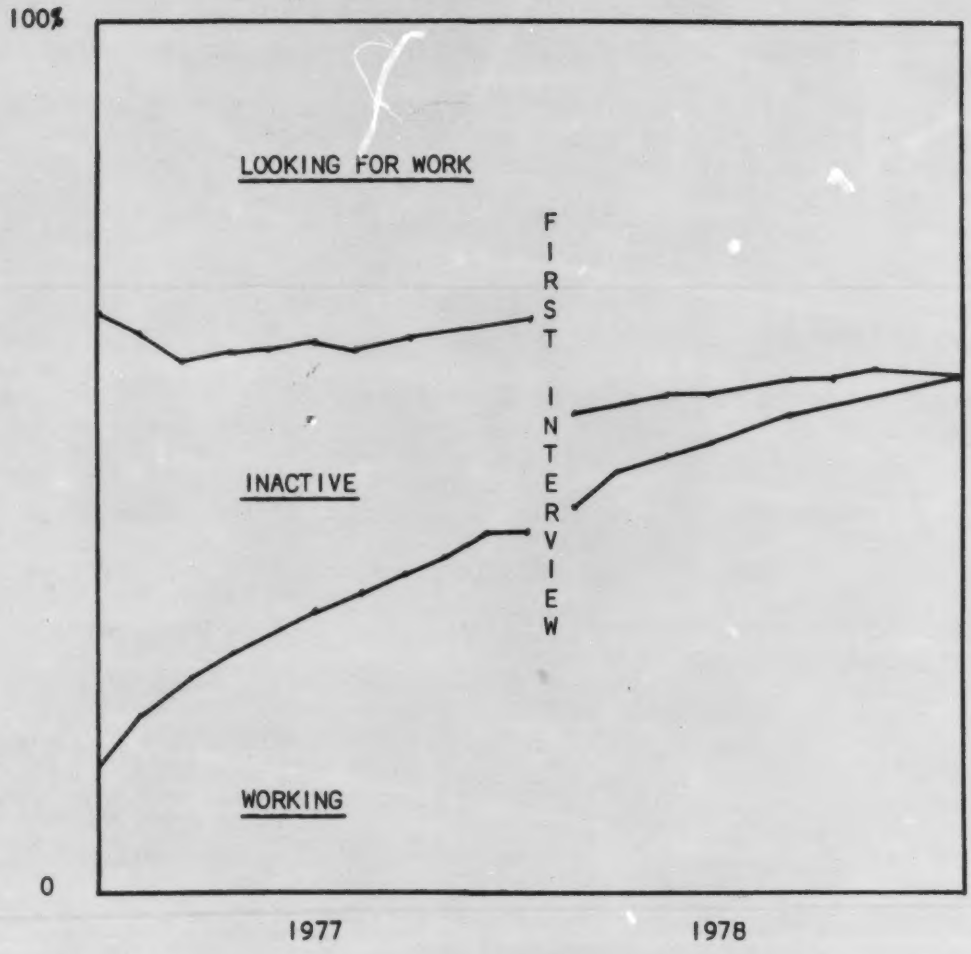
It is not clear where to draw the line between those who should and should not be included in the labor force. The questions about what persons had done to look for work may impose standards about job search that are inappropriate for some situations in Indonesia. When asked the same questions about what they had done to look for work, more than one-quarter of those with a job in 1977 replied that they had done nothing to look for that job. Doing nothing may be a reasonable way to get a job. Perhaps the most that can be said is that the description of actions to get a job, just like the results about how many persons have jobs, indicates a slow but steady absorption into more and more labor market activities among those who have not yet gotten their first job.

Absorption as Measured by the Calendar Questions.

The slow but steady absorption into work and into the labor force is perhaps best illustrated by the results of the calendar questions. These questions were necessarily less precise about labor force activity, simply asking individuals when they were working, looking for work, etc., without going into what the individual (or the interviewer) meant by these terms. Figure 1 tracks the reported activities for those members of the cohort from senior secondary schools excluding SPG, who were identified as either working or looking for work at the time of the second interview. At the very beginning, most cohort members were neither working nor looking for work. (Those "not in the labor force" were at home, in school, or taking courses; the decline in the number outside the labor force came mostly because there were fewer persons at home.) It was seven months after school was over until a third of the cohort had jobs, and 12 months until at least half had work.

Flows of labor: the mechanics of jobs and joblessness. As shown in Figure 1, a fairly constant proportion of the cohort were looking for work throughout the twenty-one months and a steadily increasing proportion found work. The individuals who made up these various labor force groups, however, were changing. The monthly figures in Figure 1, as well as the data in Table 7 reporting on labor force status

FIGURE 1 LABOR FORCE STATUS, OUT-OF-SCHOOL TRACER STUDY COHORT, JANUARY 1977-SEPTEMBER 1978[a]



[a]That part of the cohort (excluding SPG graduates) who were either working or looking for work in Sept., 1978.

at the time of the two interviews, are estimates of stocks at various points in time; those stocks are the net results of gross flows over time, flows into and out of the labor force, into and out of jobs, and into and out of being without a job.

The amount of unemployment, in any country, depends upon the flows into and out of unemployment. Or, to put it another way: the amount of unemployment depends upon the number of spells of unemployment (the flow into) and the duration of these spells. The same rate of unemployment could come from many spells of a short duration or, alternatively, fewer spells of a longer duration.

Table 9 contains estimates of the month-to-month changes in labor force status that took place among the out-of-school cohort over the entire period covered by the tracer study. The data are from the "calendar question," and entries in the table indicate the average change over the entire 21-month period. (See Marston for a similar analysis for the US, using a different source of data.) Over the course of that period (first row), 97% of the persons working in one month were, on the average, working the following month while 3% were out of work; 2% were no longer working but were looking for work, and 1% had left the labor force. Among those each month who were not working but looking for work (second row), 5% had found jobs the following month, 92% were still looking for work, and 3% had stopped looking. Among those who were inactive in one month (third row), 3% were working during the subsequent month, 9% were looking for work, and 88% were still inactive.

Table 9 AVERAGE MONTH-TO-MONTH CHANGE IN LABOR FORCE STATUS OUT-OF-SCHOOL MEMBER OF TRACER STUDY COHORT[a] FIRST TWO YEARS AFTER GRADUATION

	Total	Current Month: Employed	Looking for Work	Inactive
Last Month:				
Employed	100%	97%	2	1
Looking for work	100%	5%	92	3
Inactive	100%	3%	9	88

[a]Excluding SPG graduates.

A striking feature of the figures in Table 9 is the small size of the month-to-month change; the lack of change helps one understand the mechanics of jobs and joblessness in Indonesia. First, although there is a definite trend toward absorption into work shown earlier in Figure 1, the rate of absorption is quite slow. When young people go from inactive status into the labor force, only one out of four go directly into jobs; the remainder begin looking for work. If a young person is looking for work in one month there is only one chance out of twenty he or she will be employed the following month. This means that the average duration for a spell of looking for work is over 12 months (and 40% of those spells are terminated when the individuals give up looking for a job). The slow absorption also accounts for the fact that 21 months after leaving school, 40% of the cohort have yet to find their first job. Second, finding an initial job does not mean the person will remain employed. Three percent of those working in one month are no longer working the following month: two-thirds look for work and the remainder leave the labor force. Over the course of a year, over one-third of those in jobs change their labor force status and the person who loses his job is faced with a spell of looking for work which, on the average, lasts for more than twelve months.

As a result of the slow aborption and low turnover, there was great variation in the total work experience among members of the cohort over the two-year period. Table 10 contains the total number of months each respondent worked after leaving school. About one-fifth of the cohort had worked at least 14 months in that period between school and the time they had been interviewed; one-third had not worked at all and another one-sixth had worked less than six months.

Table 10 TOTAL MONTHS WORKED, OUT-OF-SCHOOL MEMBERS OF TRACER COHORT[a] FIRST TWO YEARS AFTER GRADUATION

None	33%
1-6 months	16
7-13 months	28
14-21 months	23
Total	100%
Median 10-11 months (among those who have worked)	

[a]excluding SPG

Other Activities

Working or looking for work are not all of the possible activities for a fresh graduate who wants a good job. Other activities included trying to continue full-time education and taking short courses.

Secondary education in Indonesia is traditionally an avenue to higher education. Probably many graduates see further education as an important option they should consider or investigate. Certainly many of the cohort tried to continue their education. Over one-quarter of those who were not in school at the time of the second interview had tried to enter school during their first year after leaving secondary school. These persons were not necessarily counted as inactive but they did carry out other acitivities besides working or looking for work that were likely to have delayed serious entry to the labor force.

Continuation of full-time formal education as described in an earlier section of this paper is not a complete picture of the further education of the young people described in this report. Many of those who did not go on to further full-time education did take additional courses. Overall, about 40% of the out-of-school graduates had taken courses sometime during the two-year period for which data were collected. There were substantial proportions from all types of schools; the highest proportion was found among SMA (academic) graduates. Almost all of the courses had been taken at the iniative of the graduate and paid for by either the graduate or his or her family; only a few were taken at the request of an employer or paid for by an employer.

There is, of course, a cause and effect problem here: it could well be that a perception of poor job prospects led people to further education of some sort. The point is that there are more choices open to a fresh graduate than working or looking for work and these other activities can delay serious entry to the labor market.

Were Graduates Prepared for Work?

There are hints from the tracer study that some graduates were not prepared for the labor market, or at least did not think they were. First of all, there are the large numbers who took additional courses. Second, a large number of gradutes, from all types of schools, said they did not think they had gotten useful job skills from school.[1] (See Table 11) This was reported one year after leaving school and the statement may well have been influenced by the respondent's labor market experience. It is, perhaps, expected but unfortunate that most SMA graduates felt they had not obtained useful skills; it is surprising that at

Table 11 PERCENTAGE OF OUT-OF-SCHOOL TRACER STUDY COHORT, WITH USEFUL JOB SKILLS FROM SCHOOL

SMA	24%
SMEA	62
STM	68
SKKA	84
SPG	72

[1]Each member of the cohort was asked "Do you think you got any special skills for working from schoo in 1976?"

least one-third of those from the "vocational" schools had the same opinion. A third point is that only a handful of graduates, almost all from SPG, reported any help at all from their school in getting a job.

Working: What Makes the Difference?

At the time of the second interview, 58% of the senior secondary graduates who wanted work had jobs. In other words the probability of working for those who were looking for work was about 0.6. There was, however, considerable variation among different groups of individuals. See Table 12. In the upper part of the table, individuals are grouped as to the characteristics they possessed at the time of graduation: age, sex, type and location of school, language spoken at home, and whether they had—or thought they had—job skills when they left school. In the bottom part of the table, individuals are grouped as to actions taken after graduation: whether they tried to return to full-time education, took a course, or were working at the time of the first interview.

The highest probability of working was found among those who had been working one year earlier, an understandable result given the slow rates of turnover and change described above. Among the different schools, the highest probability of working was found among STM graduates and the lowest among SMA and SKKA graduates. Those who had taken courses had a lower probability of working than those who had not taken courses.

One trouble with such a list as a basis of analysis is that individuals can belong to several groups at the same time. Also, association in a group may be highly dependent on what has gone on before. For example, SMA graduates have a lower probability of working and so do those who took courses. To what extent is the lower probability of working for SMA graduates independent of course-taking or do the SMA results occur mainly because SMA graduates took courses and hence delayed their entry into the labor market?

TABLE 12 PERCENTAGE WITH WORK, OUT-OF-SCHOOL TRACER STUDY COHORT WANTING WORK SEPTEMBER 1978,[a] BY PERSONAL AND BEHAVIORAL CHARACTERISTICS

AGE	
19 or less	57%
20 or 21	59
22 or more	56
Male	60
Female	55
Type of school	
SMA (Academic)	52
SMEA (Economic)	59
STM (Technical)	64
SKKA (Home Economics)	37
Language spoken at home	
Bahasa Indonesia	58
Regional	56
Both	63
Skills from school?	
Yes	63
No	55
Tried to return to school	
Yes	57
No	58
Took courses	
Yes	51
No	63
Working 1977	
Yes	84
No	41

[a] Excluding SPG

A modified path analysis has been used to measure: (1) whether each of the various factors listed in Table 12 are associated with a higher, or lower, probability that an individual was working at the time of the second interview, after taking into account his other characteristics and previous activities; and, (2) whether the effects on differences in the probability of working are obtained directly or indirectly, that is, through an intervening variable. The analysis consists of a series of logit regressions in which the 'preconditions,' those characteristics in place at the time of graduation, are the initial independent variables; the intervening variables, the various outcomes or events that occur between leaving school and the final interview, are at first dependent and then added to the list of independent variables. Results for Jakarta and the rest of Indonesia are summarized in the first and second parts respectively of Table 13; full results are contained in Appendix 3. (A separate analysis was made of Jakarta because of substantial differences in both individual characteristics and labor market outcomes among graduates from Jakarta and the rest of the country. Also, the sample schools included no SMEA school in Jakarta.) The entries in Table 13 indicate the marginal effects of the independent variables on the probability that the particular dependent variable will occur. As indicated in the Appendix, the marginal effect of an independent variable will vary depending upon the other characteristics of the individual. Each 'marginal effect' entered in Table 13 is the increase (or decrease) in probability for a typical or modal individual compared to the probability had the

Table 13 SUMMARY, MARGINAL EFFECTS OF SELECTED VARIABLES ON THE PROBABILITY OF WORKING, 1978, OUT-OF-SCHOOL TRACER STUDY COHORT (EXCLUDING SPG)

Independent variables and variable group	Dependent Variables: Wanted to Continue Education	Took Courses	Work 1977	Work 1978
JAKARTA				
Type of school				
SMA		0	0	X
SMEA	No	0	0	X
STM		-.23**	+.22**	X
SKKA		0	0	X
Sex	Variable	X	X	X
Language spoken at home		X	X	X
Bahasa Indonesia				
Regional	has			
Both				
Age	sig.		X	X
19 or less		0		
20-21		+.05*		
22 or more	effect	-.05**		
Had job skills from school		X		
No			-.08*	-.07**
Yes			+.08*	-.08**
Wanted to continue education			X	X
No		-.06**		
Yes		+.06**		
Took courses			X	X
No				
Yes				
Working in 1977				
No				-.25**
Yes				+.15**

Table 13 continued

	Wanted to Continue Education	Took Courses	Work 1977	Work 1978
AREA OUTSIDE JAKARTA				
Type of Schoool				
SMA	+.08*	+.10*	X	X
SMEA	-.03*	0	X	X
STM	0	-.07**	X	X
SKKA	0	0	X	X
Male	X	-.09**	X	X
Female		_.12**		
Location: other Java	+.09**	-.03**		
other Indonesia	-.05**	+.04**	X	X
Language spoken at home				
Bahasa Indonesia	X	+.07**	X	X
Regional	X	0	X	X
Both	X	0	X	X
Age				
19 or less	+.03**	X	X	+.07**
20-21	0		X	0
22 or more	-.03**		X	-.11**
Had job skills from school				
No	+.02*	+.05**	-.06**	
Yes	-.02*	-.04**	+.06**	
Wanted to continue education				
No		X	+.04**	X
Yes			-.05**	
Took courses			X	
No				+.07**
Yes				-.07**
Working in 1977				
No				-.25**
Yes				+.15**

Dependent variable took a value of 0 if situation (wanted further education, took courses, was working when inteviewed in '77, was working when interviewed in '78) did not occur, a value of 1 if it did occur. A 0 entry in table indicates that the entire group of variables, e.g., type of school, was entered in equation but the particular variable in that group had no significant efffect on probability. An X entry in table indicates that entire group of variables, e.g., type of school, had no significant effect on probability and hence was not entered in equation.
* significant at approximately .90 degree of confidence.
**significant at approximately .95 degree of confidence.
For derivation and meaning of entries in table, see text and Appendix

entire grouping of variables not been considered. For example, consider the probability that graduates outside Jakarta took other courses. The marginal effect of attending an STM school on the probability of taking courses is -.07; that is, the probability of taking courses for STM graduates was .07 lower than the probability obtained had type of school not been considered. The figure was obtained by estimating the probability for a modal graduate outside Jakarta (male, speaking a regional language, living outside Java, who thought he had job skills) and then re-estimating the probability for the same individual from an STM school. The first figure is .17; the second is .10. Hence, the marginal effect of STM education is -.07. Only results that are significant with a degree of confidence of at least .90 are included in the table. A zero entry (0) in Table 13 indicates that the variable was in the equation but, after controlling for all other variables, there was no significant impact on the probability. An X entry indicates that the program did not accept the entire group of variables since it did not appreciably affect the probability in question.

The results can be used to explore a number of issues. Let us, for example, examine the hypothesis that other activities, like taking courses or trying to continue education, delay serious labor force entry and therefore reduce the probability of working. Regressions one and two describe patterns associated with higher or lower probabilities of one of the other activities; regressions three and four describe the effects of these and other activities, as well as other variables, on the probabilities of working.

In Jakarta, whether a graduates tried to return to school was not influenced by type of school or other factors in the equation. As for course-taking, STM graduates were less likely to have taken courses (regression two) than were other graduates and older graduates less likely than younger ones. Whether a person had tried to return to school or had taken a course, however, had no apparent effect on whether an individual was working in either 1977 or 1978.

As for graduates from the rest of Indonesia: the probability of wanting to go back to school was lower for those living ourside Java and for older gradutes; those who went to STM schools were less likely to have taken additional courses compared with SMA graduates; and men were less likely than women to have done so. Wanting to go back to school was associated with a lower probability of working in 1977, but not in 1978. Taking courses had no impact on whether a person was working in 1977 but it did significantly reduce the probability of working in 1978. Thus, there is support for the hypothesis that other activities delay labor force entry and thereby reduce the probability of working, but only among graduates outside Jakarta.

The modified path analysis produced other important findings relevant to the central issues in this paper:

(a) In Jakarta, STM graduates have a higher probability of working than do graduates from SMA, but only for 1977. (Regressions three and four for Jakarta.) The better job success for STM graduates shown in Table 12 and later in Table 17 comes entirely in the first year after graduation. Once one controls for whether graduates were working in the first year, then differences between SMA and STM disappear, which implies that the rate of absorption from the pool of those without work as about the same for the two schools during the second year.

(b) Those persons who said that they had gotten job skills from school had a higher probability of working than those who did not think they had such skills; these effects were significant for increasing the probability of working in 1978 as well as in 1977. (Regressions three and four.) There is a cause and effect problem for interpreting the 1977 results since the question about job skills was not asked until the 1977 interview. Therefore, there is no way to tell whether it was geting a job that helped young people realize that they really did have job skills that are useful in work. However, the results of the final regression—those who reported job skills from school in 1977 had a significantly higher probability of working in 1978—indicate the real possibility that such a belief may actually have some effect on success in getting a job. This should be an area for further investigation.

One should not overstate the results of this analysis. There is a high correlation between work in 1977 and work in 1978 but only some correlation between working and the other variables in the models. Most of the "variation" in whether graduates are working or not no doubt remains unexplained.[1] The main point is that the type of school does have an impact, and, to some extent, so do actions taken by graduates, location, and whether a person thinks he has job skills.

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[1]The R^2 in ordinary least squares is a measure of what proportion of the variation in the dependent variable is "explained" by variations in the independent variables. There is no comparable statistic to an R^2 in logit regression.

What is "Employment"?

The simple dichotomy of having a job and being jobless does not give a complete picture about labor market success. Success can depend not only on whether an individual has a job but also on what type of job he has. The data in Table 14 describe various aspects of jobs held by members of the cohort at the time of the two interviews. The figures are presented to show not only the characteristics of the jobs at each point in time but also what type of changes took place over the two-year period. At the time of the first interview, 63% were not working, 9% were working for the government or in a government enterprise, 20% were working for private employers and 9% had an "other" job (mostly unpaid family or own account work). At the time of the second interview the proportion not working had fallen to 42%. The increase in employment had come entirely from increases in either government employment (to 19%) or working for a private employer (to 31%); the number working in the "other" category stayed about the same.

Table 14 JOB CHARACTERISTICS, EMPLOYED MEMBERS, OUT-OF-SCHOOL TRACER STUDY COHORT[a], ONE AND TWO YEARS AFTER GRADUATION

	November 1977	September 1978
Total working or wanting work	100%	100%
Not working	63	42
Working	37	58
Employer		
Government or government enterprise	9	19
ABRI	(b)	1
Private employee	20	31
Other	8	8
Job Quality		
Pay (in '000 of Rp/month)		
Jakarta		
Less than 15	13%	14%
15-25	18	18
More than 25	14	27
Out of Jakarta		
Less than 10	17	20
10-20	14	24
More than 20	6	14
Prospects for the future		
Very good	7	13
Moderate	15	29
Not good	15	17

[a]Excluding SPG graduates
[b]Less than 0.5%

The second group of figures describes the pay level for the employed (for those for whom there is that information). Separate figures are provided for the graduates who were and those who were not working in Jakarta. The growth in employment between the first and second interview were mostly in the higher paid jobs. The bottom set of figures contains a subjective judgement about the job: what did the respondent who was working think about prospects for the future in his or her job? A significant minority of those working thought that prospects in their job were not good, an equal number thought prospects were moderate, and the smallest group thought they had jobs with very good prospects. The increase in employment took place almost entirely in jobs that had at least moderate prospects and much of the increase was in jobs which respondents identified as having very good prospects.

Overall, the number of persons with jobs increased, probably the quality of those jobs increased, but, at both times at which members of the cohort were interviewed, there was great variation in the quality of jobs among those who had work.

Changes in Employment.

The figures presented so far indicate: (1) there was a substantial increase in employment over the two-year period covered in the tracer study and these increases were mostly in better quality, higher paid jobs (Table 14); (2) there was some turnover among members of the cohort (Table 9); and, (3) many graduates delayed looking for or getting work either because they wanted to go back to school, or to take short courses, or for other reasons not captured in the interview. This section explores the issue of whether a delay in getting work reduces the possibility that the person will be able to get a reasonably well-paying job when he or she eventually does find work.

Regression analysis was used to explore this issue. First, some correlations will be presented. If one looks at the graduates working in 1978, there is a

significant correlation between their rate of pay and the type of school attended, their sex, the language spoken at home and how many months they had been working. Rates of pay were substantially higher in Jakarta. In addition, there were substantial differences in the correlation results for those persons working in Jakarta and those working somewhere else in Indonesia. In Jakarta, SMA graduates were earning less than STM graduates; elsewhere in Indonesia, the SMA graduates included in the tracer study clearly were not earning less and probably were earning more than STM graduates, and SMEA graduates were earning the least. For Jakarta, there is a clear positive relationship between how long a person had been working (or whether he or she had gone to work early on after leaving school) and how much he was earning; the relationship outside Jakarta was in the same direction but was not statistically significant.

Regressions were run separately for men and women and for those in Jakarta and those in the rest of Indonesia. The dependent variable was the natural logarithm for the rate of pay in 1978. Included in the independent variables was a dummy variable describing the job, or lack of one, as of the time of the first interview in 1977. Those who had been working were grouped as to whether they had been in the lower, middle, or upper third of the wage distribution that was obtained at the time of the first interview. Results are shown in Table 15. Clearly, the previous job has an important influence on the quality of subsequent employment. For example, outside Jakarta, a man who had been working in a better paying job in 1977 was earning on the average 71% more per month than the man who had not been working earlier but was in a job at the time of the second interview. However, the young man who had been working earlier in a poor paying job was earning 20% less than one who was working in 1978 but had not had a job when previously interviewed. Outside Jakarta, graduates who delayed their entry were at a significant advantage over those who had gone to work but at a low paid job; in Jakarta, those who waited had no advantage but they also clearly had no disadvantage either, compared with those who had earlier worked in low paid jobs.

A Summary about Success in the Labor Market

If one measures the job success of graduates in terms of how many have jobs at any particular time, then the analysis of the Indonesian cohort clearly indicates that a most important factor is how soon a person gets a first job. Delays in getting that job such as trying to go on to further education, or taking courses, or waiting for a good job to come along, slows the process and makes joblessness higher than it would otherwise have been.

Table 15a CORRELATES OF VARIATIONS IN WAGE RATES, EMPLOYED OUT-OF-SCHOOL MEMBERS OF TRACER STUDY COHORT WORKING IN JAKERTA IN SEPTEMBER 1978[a]

Independent Variables	Men	Women
JAKARTA		
Age (as compared to 19 or less)		
20-21	-0.08(0.38)	-0.04(0.26)
22 or more	-0.05(0.23)	-0.64(1.68)*
Languages spoken at home (as compared with regional)		
Bahasa Indonesia	-0.05(0.45)	-0.44(2.18)**
Bahasa and Regional	-0.20(1.44)	-0.17(0.75)*
Wanted to return to school		
Took additional course(s)		
1977 job (as compared with none)		
High Pay	0.56(4.43)**	0.64(3.34)**
Average pay	0.23(2.00)**	0.08(0.44)
Low pay	-0.12(0.85)	0.01(0.06)
Intercept	2.90	3.08
R	0.25	0.58
F	(9,106)3.98**	(9,21)3.20**

Dependent variable is natural logarithm of 1978 wage in Rp/month

t values in parentheses

* Significant at 0.1 or better
** Significant at 0.05 or better

[a]excludes SPG graduates

Table 15b CORRELATIONS OF VARIATIONS IN WAGE RATES, EMPLOYED OUT-OF-SCHOOL MEMBERS OF TRACER STUDY COHORT WORKING OUTSIDE JAKARTA, SEPTEMBER 1978[a]

Independent Variables	Men	Women
OTHER INDONESIA		
Age (as compared to 19 or less)		
20-21	0.10(0.86)	0.02(0.14)
22 or more	0.24(1.81)	0.39(0.70)
Language spoken at home		
Bahasa Indonesia	0.29(2.22)**	0.14(0.61)
Bahasa and Regional	0.22(1.90)**	0.12(0.70)
Wanted to return to school	0.10(0.86)	-0.10(0.66)
Took additional course(s)	0.04(0.33)	-0.03(0.19)
1977 job (as compared with none)		
High pay	0.54(3.53)**	0.34(1.21)
Average pay	0.18(1.65)*	0.35(1.79)*
Low pay	-0.19(1.72)*	-0.38(2.40)**
Total months worked		
Intercept	2.49	2.40
R	0.15	0.15
F (14, 316)	(10,199)3.58**	(9,111)2.20**

Dependent variable is natural logarithm of 1978 wage in Rp/Month

t values in parentheses:

* Significant at 0.1 or better
** Significant at 0.05 or better

[a]excluding SPG

However, if one's measure of success includes whether or not the person is in a good job, then the conclusions are somewhat modified. The type of job that an individual has at one time is heavily influenced by the type of job he or she has had previously. Those members of the cohort with the best chance of being in a good paying job in 1978 were those who were in a good paying job in 1977. A graduate whose entry into work was delayed, though, had not lost his chance of getting a good paying job. Indeed, graduates who went to work in a second year after graduation had just as good an opportunity in Jakarta, and a better opportunity outside Jakarta, to

be in a good paying job than did those who were working earlier but in a poor paying job.

The regression results presented earlier can be used to estimate the returns to waiting until a good job is obtained. For example, an employed male graduate, living outside Jakarta, who was in a low paying job in 1977 earned Rp 11,000 per month in 1978; a young man who had not been working at all in 1977 but was working in 1978 earned Rp 13,300. The young man who waited for a better job for a year, sayj, gave up Rp 132,000 in a year's lost income but ultimately gained an additional Rp 28,000 in yearly income. If this latter difference were to be permanent, a year's wait would yield a real rate of
return of more than 21%.

Conclusions about Unemployment Rates

One of the issues addressed in this paper is whether the high unemployment rates reported in SAKERNAS are evidence of an oversupply of secondary school graduates, a sign that secondary school should not be expanded. My conclusion is that such rates do not necessarily mean an oversupply. The unemployment rates are obtained by taking cross-sectional snapshots of young people engaged in the lengthy process of moving from school to work. The results of the tracer study indicate that "unemployment" is at best an inappropriate measure of how well those young people are progressing. There is always a problem of distortion when one tries to describe with a single index a situation with multiple social and economic dimensions. The process of moving from school to work has at least two other important dimensions beyond those captured in employment and unemployment figures: (1) many young people in Indonesia are more interested in further education than in getting a job. The labor force concept assumes a commitment to the labor force and does not take into account other activities, even those that could have long term importance for labor market success; and, (2) concern about "unemployment" carries with it the implicit assumption that

employment is success and unemployment failure. But "employment" in Indonesia can be anything from low pay, low productivity "work" in the informal sector to a relatively well paid job with career possibilities. Thus, "unemployment" which ends with a reasonably good job is a better outcome than is continuous low paid, low productivity work.

Each year a fresh cohort of new secondary school graduates leaves school and enters the labor market. The tracer study indicates that some get work almost immediately but a substantial number do not. The probability of unemployment for a fresh graduate is high but it steadily declines over time, and his or her initial unemployment does not harm his chances of getting a good job later on, at least during the period for which we have data. The tracer study information ends after the second year when 40% of the out-of-school graduates had yet to find work but there is no sign that the process of absorption had begun to slow down. None of the persons interviewed had dropped out of the labor force because of discouragement in finding work; indeed, the amount of search was higher in the second year than it was in the first. And the net additions to the graduates' jobs were better in the second year than in the first. An extrapolation of the cohort's experience based on the cross-sectional data of SAKERNAS, showing that unemployment rates steadily decline with age, indicate that all members of the cohort are eventually absorbed into work. Thus, measured unemployment is high because there is a group (a large group relative to its age/education cohort) which is in the process of going from school to work. The group is eventually absorbed into work but is constantly being replaced by fresh cohorts of new school leavers. High unemployment rates are generated by having substantial numbers of persons who have long periods of looking for work. A rate of unemployment for a particular age/education cohort that is dominated by newcomers is no guide to the labor market success of that particular level or type of education.

If, as looks to be the case with the Indonesian secondary school graduates, all are eventually absorbed into employment, then one should look to the quality of that employment to judge whether or not their education has been a success.

IV. IS SECONDARY EDUCATION A GOOD INVESTMENT?

There is no question that secondary education opens up job opportunities for the graduate that are unobtainable to someone without that level of education. The SAKERNAS material cited earlier shows a very substantial wage advantage for the person who has completed secondary education as opposed to one with just a primary education. Therefore, both sets of data indicate that secondary school graduates are more productive than are those with just a primary education. However, the increases in productivity have been obtained at some cost: both the resources that went into the secondary education and the foregone earnings because the young people were in school rather than working and thereby contributing to the economy. In order to determine whether a secondary education is a good investment, one must determine how efficiently increases in productivity have been obtained. One such indicator is the social rate of return which takes into account both the higher earnings (a proxy for the increase in productivity) and the costs of the education that contributed to those higher earnings.

Estimates of the social rate of return to senior secondary education are contained in Table 16. Rates were calculated using the short-cut method (Psacharopoulos). Details are in the Appendix. Estimates of resource costs come from a study of secondary school finances made parallel to the tracer study (Widodo). Foregone earnings have been estimated from tracer study data. The additional earnings were based on SAKERNAS data adjusted for the wait before graduates get jobs as demonstrated by the tracer

Table 16 SOCIAL RATES OF RETURN, URBAN MALE SENIOR SECONDARY GRADUATES, 1978

Compared to primary graduates	Academic	Vocational	All
If average senior secondary graduate has to wait:			
0 years to get a job	32%	18%	24%
1	26	14	19
2	22	12	16
3	19	10	14
Senior secondary education (SLTA) compared to graduates of junior secondary education (SLTP)			27%
Junior secondary graduates (SLTP) compared to primary graduates (SD)			22%

See text and Appendix for details of calculations and sources for data.

study.[1] All differences in earnings are attributed to the

[1]It would probably be better to use only SAKERNAS or only tracer study data for the earnings to insert in the rate of return formula. Neither source, however, is ideal; therefore, both were used. What is needed is information on wage rate differences throughout Indonesia, preferably for the private sector where administered wages would probably be less of a problem. Unfortunately, neither the tracer study nor SAKERNAS data completely meet these criteria. The tracer study does contain wage rates in the private sector for various locations. Unfortunately, the tracer study obtained no information about primary school graduates in Jakarta, where wages are substantially higher than elsewhere. Comparing wage rates of secondary school graduates in Jakarta with primary school earnings in other parts of the country would likely give biased results. Another problem with the tracer data is that the earnings of primary graduates obtained in the study are of very young persons (14 years old, on the average). SAKERNAS provides nationwide figures for urban and rural areas but there are no separate figures for employment in the private sector. SMA graduates are treated separately from "vocational" graduates, but the latter group presumably includes all types of schools including those not under the Ministry of Education.

secondary education; there has been no inclusion of an alpha coefficient to account for differences in earnings which might be attributed to better native ability or advantages possessed by secondary school graduates but not by those who only finished primary school.

The returns to senior secondary education are impressive even with the slow employment absorption. If a graduate has to wait two years, on the average, before going to work, the rate of return to his education is 16% (third column). This figure is the estimated annual return to the extra costs of six years of education beyond the primary level. This rate, as well as others in the table, are real rates, already adjusted for inflation. Clearly, senior secondary education is a good investment.

The table also includes the rate of return to the last three years of senior secondary education (SLTA) as compared to the rate for junior secondary school (SLTP).[1] Junior secondary education appears to be a good investment, but senior secondary is even better.

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[1]This paper has said nothing about junior secondary education because there is very little information about labor market results of these graduates. The tracer study included junior secondary (SLTP) graduates, but 90% of those graduates went on to further education so the sample of persons in the labor market was quite small. Those individuals from junior secondary who did want work had an even longer wait to get a job, and when they did get work, their pay was substantially lower as compared with graduates from upper secondary, but they were three years younger. The rate of return to junior secondary school was calculated using the same method and data sources as for senior graduates.

What Type of Secondary School Should Be Expanded?

Table 16 contains rates of return to academic (SMA) and "vocational" senior secondary education. The returns are highest for academic graduates. These figures aggregate all secondary graduates working in urban areas of Indonesia and the "vocational" results are for all types of specialized education. Tracer study data provide information about job success for graduates of different types of specialized schools and for different regions. The best job record was among SPG graduates for reasons described earlier. The record for the other graduates is contained in Table 17. In Jakarta, STM graduates had a substantially better record than those from SMA: a higher proportion were working and at higher rates of pay. In other parts of Java, SMEA graduates had the highest proportion working but the earnings of the three types of schools were about the same. Outside Java, SMA graduates had the best record: more were working and at higher rates of pay than other graduates.

The rates of return point to academic (SMA) senior secondary education as the better investment, even if one takes into account the finding that graduates from some vocational schools get jobs more quickly and thus have shorter waiting times. The tracer study data, however, show that in some locations graduates from one type of school are earning substantially more than academic graduates. Together these two sets of figures indicate that academic education overall is the best investment but there are probably locations where one (or more) of the specialized schools deserve an even higher priority.

Table 17 LABOR MARKET RESULTS IN 1978, MALE, OUT-OF-SCHOOL MEMBERS OF TRACER STUDY COHORT, BY LOCATION

	Jakarta	Other Java	Non-Java
Proportion of those wanting work who had jobs:			
SMA	38%	53%	67%
SMEA	-	73	36
STM	68	53	62
Mean earnings of those with work (1,000's Rp/month):			
SMA	22	19	19
SMEA	-	17	17
STM	28	20	13

Note: Blanks appear where sample is too small for accurate estimates.

Source: Tracer Study

APPENDIX 1

SPECIALIZED SECONDARY EDUCATION IN INDONESIA

There is wide variation among countries around the world in the importance of vocational education at the secondary level. Some countries have large numbers of students in vocational schools at the secondary level, others have very few. Table 1 in this Appendix summarizes figures about the ratio of vocational students to students in general academic education at the secondary level for all countries for which there are data. That ratio in Indonesia was 0.41; that is, for every 100 students in academic (SMA) schools there were 41 students in specialized or vocational education. As indicated in Table 1, there were ten countries, all of them among the developed countries, who had more vocational students than academic, and another eleven with ratios of less than one but with a ratio equal to or higher than that or Indonesia. The vast majority of the countries, particularly the less developed ones, have smaller ratios than does Indonesia. Clearly, Indonesia places more emphasis on vocational and technical education than do most of the developing countries.

Table 1 VOCATIONAL TECHNICAL SECONDARY STUDENTS AS A PROPORTION OF STUDENTS IN GENERAL ACADEMIC SECONDARY EDUCATION, BY TYPE OF COUNTRY, EARLY 1970'S

		RATIO OF VOC-TECH TO ACADEMIC STUDENTS			
	TOTAL	MORE THAN 1.0	.41-1.0	.001-.40	NONE
More developed countries*	30	10	7	11	3
Less developed countries*	76	0	4	71	1
Total number of countries for which data are available	106	10	11	82	3

Notes: Indonesia's ratio of vocational to general academic students is 0.41.

* "More developed/less developed" as reported in U.S. Statistical Abstract based on UN definition.

Source: UN Statistical Yearbook, 1976 Table 207.

APPENDIX 2

EMPLOYMENT AND UNEMPLOYMENT AMONG YOUTH IN INDONESIA: RESULTS FROM THE NATIONWIDE LABOR FORCE SURVEY(SAKERNAS)

According to the 1978 Labor Force Survey, the total labor force in urban Indonesia was just over 8 million persons including 493,000 unemployed (see Table 2). Persons under 25 made up about 25% of the total labor force and 73% of the unemployment. Indeed, virtually all (87%) of the unemployment was among those who were under the age or 30. Open unemployment in urban areas is clearly a situation that occurs almost exclusively among young people.

At the time of the survey the unemployment rate of all persons under 30 was 13%. The rate was 16% for those under 25 and 6% for those 25-29. Most of the unemployed young people had never worked. Only 23% of the unemployed under the age of 20 had held a job. The proportion with prior work experience does rise with age but even among the unemployed aged 25-29 only 52% have had previous work experience.

The figures from the labor force survey present the labor market situation at one moment in time. Results from a crude stock and flow analysis about unemployment over the course of an entire year are shown in Table 3.

Table 2 EMPLOYMENT AND UNEMPLOYMENT IN URBAN INDONESIA, 1978

	Labor Force	% of Total	Unemployment	% of Total	Rate
All	8,171,000	100	493,000	100	6.0
Ages less than 30	3,431,000	42	429,000	87	12.5
Less than 25	2,268,000	28	360,000	73	15.9
25-29	1,164,000	14	69,000	14	5.9
30 or over	4,740,000	58	64,000	13	1.3

Source: SAKERNAS, 1978

Table 3 DURATION OF COMPLETED SPELLS IN CROSS SECTION AND OVER THE ENTIRE PERIOD

Duration of completed spells	Cross Section	Over an entire year
Up to 3 months	33,000	264,000
4 to 7 months	112,000	244,000
8 to 13 months	98,000	112,000
14 to 24 months	93,000	
25 to 47 months	57,000	187,000
48 or more months	37,000	
	429,000	807,000

Source: Based on data from SAKERNAS, 1978. See Appendix text for procedures used.

The figures were arrived at in the following fashion. At any one point in time during 19/8 there were an estimated 429,000 unemployed

persons below the age of thirty.[1] This figure is the net result of gross flows among individuals into and out of unemployment. The same figure would have resulted had there been 429,000 persons all with a spell of unemployment lasting the entire year, or 858,000 persons all with an unemployment spell lasting six months, or 1,720,000 persons each with a spell lasting three months, etc. The first column contains estimates for the length of the spell of unemployment for those who were unemployed at the time of the 1978 labor force survey; the figures are based upon duration of unemployment reported in the survey. The duration reported in the survey refers to the amount of time that the unemployed had been looking for a job at the time of the survey and not to the total length of unemployment since the spell had not yet ended. If one assumes a steady state situation (an assumption used throughout the procedure used to estimate these figures), then the unemployed were, on the average, halfway through their spell of unemployment. Thus, there were about 33,000 persons in the midst of a spell lasting somewhere up to three months, 112, 000 in a spell that lasted anywhere from four to seven months, 98,000 in a spell that lasted eight to thirteen months, etc. (There is no way to tell <u>which</u> individuals were in the middle of a short spell and which were not.)

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[1]The 1978 labor force survey contains information about the duration of unemployment among the unemployed but the figures are presented without regard to age. Since most of the unemployment is among individuals under the age of 30 it seems safe to use the duration data to describe stocks and flows among the young. In this spirit, the distribution for duration of unemployment for all unemployed has been applied to derive the estimated number of length of unemployment spells for persons under the age of 30 contained in Table 3.

The third column in Table 3 contains estimates of the number of unemployment spells occurring over the entire year. For example, if at any one point in time there are 33,000 persons in a spell of unemployment lasting up to three months, there will be about 264,000 of such spells occurring over the year.[1] Thus, there will be a total of about 807,000 spells over the course of a year in a labor force numbering about 3,400,000. Thus, unemployment is experienced by more individuals than is implied by the cross-sectional data. Nevertheless, a large part of the unemployment reported by the labor force survey comes from the relatively small number of persons who have a long period of unemployment. Over the course of the year, there were about 5 million person months of unemployment. Sixty-four percent of the unemployment was accounted for by the 299,000 individuals (or about 12% of the total labor force) who had spells lasting eight months or more.

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[1] If each spell lasted an average of one and one-half months, 33,000 spells in cross-section would imply about 264,000 such spells over a year. The number of spells is not equivalent to the number of individuals experiencing unemployment in the course of one year since one person can have more than one spell of unemployment in a year. In the case of Indonesia, the number of spells may come close to the number of individuals since labor markets operate so slowly.

APPENDIX 3

LOGIT REGRESSIONS

The multi-variate analyses of factors that affect the probability of continuing education (Table 6) and working (Table 13) both involve 0,1 dependent variables. Hence, regressions using a logit transformation have been applied (see Judge for description of problems involved in using a 0,1 dependent variable and the justification for using a logit transformation) using the BMDP program (Dixon). This is a stepwise program in which the program chooses, from among all groups of variables entered in the analysis, the most useful group to first enter in the equation. The various types of schools is an example of a group of variables; the program would enter all five school types and measure the effect of each school type. The program stops entering variables when additional variables do not significantly improve the probability estimates. Thus, the summary tables in the text list: (1) all variable groups entered in the analysis; (2) those variables accepted by the program and significantly improving the estimated probability (those not accepted are marked with an X); and, (3) final estimates of significance after taking into account all other variables entered in the final equation. The output of particular interest is the "coefficient" and the coefficient divided by the standard error. (See following Appendix tables.) The latter can be read roughly as a t statistic; these values have been used to indicate whether or not the variable is significantly associated with changes in the probability for the particular dependent variable. Since there has been a log transformation, the probability cannot be read directly from the coefficients. Instead:

$$\text{Probability} = \frac{e^{\text{constant} + \text{coef. variable 1} \ldots + \text{coef. variable n}}}{1 + e^{\text{constant} + \text{coef. variable 1} \ldots + \text{coef. variable n}}}$$

For example the probability that a male SMA graduate from Jakarta will continue his education =

$$\frac{e^{-1.41 + 0.56 + 0.26 - .02}}{1+e^{-1.41 + 0.56 + 0.26 - .02}} = .35$$

The third column in each of the following tables contains an estimated 'marginal' effect of the particular variable. This value is the increase or decrease in probability that the dependent variable will occur as compared to the situation had that entire group of variables not been entered. Calculations are made for the modal individual, the individual with the significant characteristics most often found in the cohort of graduates included in the analysis. Characteristics of the modal individual are found at the end of each table. For example, the modal individual for Table A, logit results for text table 6, was a SMA graduate, male, who spoke a regional language, lived outside Java, and was 20 or 21 years old when he graduated. The 'marginal' effect of the SMA education was .12; that is, the probability that this modal individual would continue his education was 12 percentage points higher than if the type of his education had not been considered at all.

Table 4: LOGIT RESULTS FOR TEXT TABLE 6

Area: Outside Jakarta

Dependent variable: Continuing school, 1978

Independent Variables:	Coefficient	Coefficient/ Standard Error	'Marginal' Effect
Type of School			
SMA	.56	2.88**	+.12
SMEA	-.26	-1.94*	-.05
STM	-.24	-1.65*	-.05
SKKA	1.09	3.94**	+.25
SPG	-1.15	-6.11**	-.16
Sex			
Male	-.26	+3.46**	+.06
Female	-.26	-3.46**	-.05
Language spoken at home			
Bahasa Indonesia	-.02	0.20	0
Regional	-.20	-2.05**	-.05
Both	.22	2.40**	+.05
Location			
JKT	-.02	0.20	0
Other Java	-.17	-1.56	0
Non Java	.18	1.91**	+.04
Age			
<19	.80	5.74**	+.20
20, 21	.12	1.13	0
>22	-.92	-5.34**	-.17
Constant	-1.41	-12.26**	

Modal Individual: SMA, male, regional language, living outside Java, aged 20, 21; p=.38

* Significant at approximately .90 level of confidence

** Significant at approximately .95 level of confidence

Table 5A: LOGIT RESULTS FOR TEXT TABLE 13

Area: Outside Jakarta

Dependent Variable: Want to continue education

Independent variables:	Coefficient	Coefficient/ Standard Error	'Marginal' Effect
Type of School			
SMA	.57	1.68*	+.08
SMEA	-.36	-1.67*	-.03
STM	0.16	0.70	0
SKKA	-0.37	-0.73	0
Sex	X		
Location			
Other Java	+0.56	+5.50**	+.09
Other Indonesia	-0.56	-5.50**	-.05
Language spoken at home	X		
Age			
<19	0.35	1.93*	+.03
20, 21	0.09	0.62	0
>22	-0.44	-2.02**	-.03
Had job skills from school			
No	+0.17	+1.75	+.02*
Yes	-0.17	-1.75*	-.02*
Constant	-1.35	-6.63**	

Mean Individual: SMEA other Indonesia, age 20-21, with job skills from school; p=.09.

X Not accepted in equation

* Significant at approximately .90 level of confidence

** Significant at approximately .95 level of confidence

Table 5B: LOGIT RESULTS FOR TEXT TABLE 13, cont'd

Area: Outside Jakarta

Dependent Variable: Took courses

Independent variables:	Coefficient	Coefficient/ Standard Error	'Marginal' Effect
Type of School			
SMA	.61	1.86*	+.10
SMEA	.04	0.22	0
STM	-0.58	-2.29**	-.07
SKKA	-0.07	-0.16	0
Sex			
Male	-0.55	-5.58**	-.09
Female	0.55	5.58**	+.12
Location:			
Other Java	-0.30	-2.56**	-.03
Other Indonesia	0.30	2.56**	+.04
Language spoken at home			
Bahasa Indonesia	0.38	2.65**	+.07
Regional	-0.16	-1.19	0
Both	-0.29	-1.54	0
Age	X		
Wanted to Continue Education	X		
Had job skills from school			
No	-0.22	-2.38**	+.05
Yes	0.22	-2.38**	-.04
Constant	-0.97	-5.47**	

Modal Individual: SMEA, male, speaking regional language, outside Indonesia, with job skills; p=.17

X Not accepted in equation

* Significant at approximately .90 level of confidence

** Significant at approximately .95 level of confidence

Table 5C: LOGIT RESULTS FOR TEXT TABLE 13, cont'd

Area: Outside Jakarta

Dependent Variable: Working in 1977

Independent variables:	Coefficient	Coefficient/ Standard Error	'Marginal' Effect
Type of School	X		
Sex	X		
Location	X		
Language spoken at home	X		
Age	X		
Had job skills from school			
No	-.025	-3.19**	-.06
Yes	+.25	3.19**	+.06
Wanted to continue education			
No	0.18	1.95*	+.04
Yes	-0.18	-1.95*	-.05
Took courses	X		
Constant	0.67	7.35**	

Mean Individual: person with job skills who did not want to continue education; p=.44.

X not accepted in equation

* Significant at approximately .90 level of confidence

** Significant at approximately .95 level of confidence

Table 5D: LOGIT RESULTS FOR TEXT TABLE 13, cont'd

Area: Outside Jakarta

Dependent Variable: Working in 1978

Independent variables:	Coefficient	Coefficient/ Standard Error	'Marginal' Effect
Type of School	X		
Sex	X		
Location	X		
Age			
<19	0.25	1.65*	+.07
20, 21	0.17	1.44	0
>22	-0.43	-2.40**	-.11
Had job skills from school	X		
Wanted to continue education	X		
Took courses			
No	+0.23	2.45**	+.07
Yes	-0.23	-2.45**	-.07
Working in 77			
No	-1.03	-10.57**	-.25
Yes	1.03	10.57**	+.25
Constant	0.45	3.59*	

Mean Individual: Aged 20-21, working in 1977, who had not taken courses; p=.46.

X Not accepted in equation

* Significant at approximately .90 level of confidence

** Significant at approximately .95 level of confidence

Table 5E: LOGIT RESULTS FOR TEXT TABLE 13, cont'd

Area: Jakarta

Dependent variable: Wanted to continue education

Independent variables:	Coefficient	Coefficient/ Standard Error
Type of School	X	
Sex	X	
Language spoken at home	X	
Age	X	
Had job skills from school	X	

X Not accepted in equation

Note: No variable had significant effect

Table 5F: LOGIT RESULTS FOR TEXT TABLE 13, cont'd

Area: Jakarta

Dependent Variable: Took Courses

Independent variables:	Coefficient	Coefficient/ Standard Error	'Marginal' Effect
Type of School			
SMA	.23	0.28	0
SMEA	-1.22	-3.50**	-.23
STM	0.07	0.10	0
Sex	X		
Language spoken at home			
Bahasa Indonesia	X		
Regional	X		
Both	X		
Age			
<19	0.17	0.62	
20,21	0.47	1.95*	+.05*
>22	-0.64	-2.05**	-.05**
Had job skills from school	X		
Wanted to continue education			
No	-0.37	-2.05**	-.06
Yes	0.37	2.05**	+.06
Constant	-0.54	-1.54	

Modal Individual: STM, Age 20-21, who had not wanted further education; p=.16.

X Not accepted in equation

* Significant at approximately .90 level of confidence

** Significant at approximately .95 level of confidence

Table 5G: LOGIT RESULTS FOR TEXT TABLE 13, cont'd

Area: Jakarta

Dependent Variable: Working in 1977

Independent variables:	Coefficient	Coefficient/ Standard Error	'Marginal' Effect
Type of School			
SMA	0.62	0.91	0
SMEA	-1.29	-1.55	0
STM	0.88	2.34**	+.22**
SKKA	0.21	0.28	0
Sex	X		
Language spoken at home	X		
Age	X		
Had job skills from school			
No	-0.31	-1.93*	-.08
Yes	0.31	1.93*	+.08
Wanted to continue education	X		
Took courses	X		
Constant	-0.92	-2.55**	

Modal Individual: STM graduate with job skills; p=.57

X Not accepted in equation

* Significant at approximately .90 level of confidence

** Significant at approximately .95 level of confidence

Table 5H: LOGIT RESULTS FOR TEXT TABLE 13, cont'd

Area: Jakarta

Dependent Variable: Working in 1978

Inoependent variables:	Coefficient	Coefficient/ Standard Error	'Marginal' Effect
Type of School	X		
Sex	X		
Language spoken at home	X		
Age	X		
Had job skills from school			
No	0.32	-2.11**	-.07**
Yes	0.32	2.11*	+.08**
Wanted to continue education	X		
Took courses	X		
Working in 1977			
No	-1.10	-6.38**	-.25**
Yes	1.10	6.38*	+.15**
Constant	0.80	4.63**	

Modal Individual: Individual with job skills who had not been working in 1977; p=.51.

X Not accepted in equation

* Significant at approximately .90 level of confidence

** Significant at approximately .95 level of confidence

APPENDIX 4

Calculations for the Social Rate of Return

The rate of return was calculated using the short-cut method (Psacharopoulos).

$$rk = (Yk - Yp)/(Yp' + C + W)$$

where rk = rate of return

Yk = earnings of senior secondary graduates

Yp = earnings of primary school graduates

Yp' = earnings of primary school graduates during the ages 15-19, adjusted for probability of not working

W = foregone earnings because of waiting to get a job

C = resource costs of secondary education

Sources of data are as follows:

Yk and Yp (earnings of secondary and elementary school graduates respectively): SAKERNAS 1978, as summarized in Tables 1 and 2 of this paper.

YP' (foregone earnings)
Earnings for primary school graduate as found in Tracer Study (5,000 Rp/Mo for first year and 11,700 Rp/Mo for other five years) times the proportion of out-of-school urban men aged 15-19 who were actually working, from SAKERNAS.

C (Resource Costs) (from Widodo)
Private costs are the weighted average of cost to parents of one child in a state school. Separate figures were given for lower and upper secondary. The data were collected from the same eight regions as were students in the tracer study. There was wide variation in the amounts reported in the sample and the figures may not be representative of the entire nation. Government costs are weighted average of routine cost per student per year. Both figures refer to 1977 and have been increased by 8% to account for the fall in the real purchasing power of the Rupiah between 1977 and 1978.

As an example: the rate ot return to SMA education with one year of waiting.

Yk - Yp = (53,600 Rp/Mo - 26,000) 12 = 331,200
annual wage advantage SMA graduate over someone with a primary education

Yp' = (5,000 x 12) .27 + ((11,700 x 12) .54)5 = 395,280
(the figures '.27' and '.54' are proportion working in proper age group)

C = ((3 x 77,304) + (3 x 117,027)) 1.08 = Rp 629,632

	average yearly cost of three years of junior sec. school	average cost for three years of SMA	inflation	Resource costs for six years of sec. school

W	= 20,000 avg. monthly wage beginning SMA graduate	x	12	=	240,000 Lost wages for a graduate who waited one year for a job

$$\frac{331{,}200}{629{,}632 + 395{,}280 + 240{,}000} = .26$$ the rate of return to an SMA grad with a one year wait

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